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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/581,551

04/12/2007

Atsushi Miyawaki

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7055 7590 10/20/2010
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EXAMINER

KIM, ALEXANDER D

ART UNIT

PAPER NUMBER

1656

NOTIFICATION DATE

DELIVERY MODE

10/20/2010

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

gbpatent@gbpatent.com
pto@gbpatent.com

Office Action Summary	Application No. 10/581,551	Applicant(s) MIYAWAKI ET AL.	
	Examiner ALEXANDER D. KIM	Art Unit 1656	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 September 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) 1-3,5,6,8,9,12-17 and 19-36 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 4,7,10,11 and 18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>08/06/2010</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Application Status

1. In response to the previous Office action, a non-Final rejection (mailed on 05/21/2010), Applicants filed a response and amendment received on 09/21/2010. In said amendment, claims 4, 7, 18 are amended.

Claim 1-36 are pending. Claims 1-3, 5-6, 8-9, 12-17 and 19-36 are withdrawn from further consideration as non-elected inventions. It is noted the instant claim 36 do not appear to have any amendment.

The claims will be examined only to the extent they read on the elected subject matter. Claims 4, 7, 10, 11 and 18 (in part) will be examined herein.

2. Applicants' representative noted that a color picture was filed (though telephone conversation on Oct 1, 2010). After reviewing the Miscellaneous Incoming Letter filed on 9/27/2010, it has been determined that the contents can not be deciphered as it is shown as black box. It is noted that, Color photographs and color drawings are not accepted unless a petition filed under 37 CFR 1.84(a)(2) is granted. Any such petition must be accompanied by the appropriate fee set forth in 37 CFR 1.17(h), three sets of color drawings or color photographs, as appropriate, and, unless already present, an amendment to include the following language as the first paragraph of the brief description of the drawings section of the specification: The patent or application file contains at least one drawing executed in color. Copies of this patent or patent application publication with color drawing(s) will be provided by the Office upon request

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and payment of the necessary fee. Color photographs will be accepted if the conditions for accepting color drawings and black and white photographs have been satisfied. See 37CFR 1.84(b)(2).

Information Disclosure Statement

3. The information disclosure statement (IDS) submitted on 08/06/2010 was filed after the mailing date of the first Office action on the merits on 7/21/09. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner. A copy of Form PTO/SB/08 is attached to the instant Office action.

Claim Objections

4. Claim 18 is objected to because it contains non-elected subject matter (i.e., the fluorescent protein or a fusion protein thereof).

Appropriate correction is required.

Priority

5. Applicants have noted that, under 35 U.S.C. §119, is a formal matter and it does not require that the Examiner review the foreign priority document to determine whether it sufficiently discloses the subject matter of any claim. Applicants noted that, in view of MPEP 1893.03(b), the filing date of a US national stage application filed under 35 USC §371 is the international filing date, provided that the 35 USC §371 filing requirements

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are met. No additional papers or translations are required to establish Applicants' entitlement to that date. Applicants also noted that there is no requirement for translations to satisfy the formal claim of priority. (see page 11-12, Remarks filed on 9/21/2010).

The Examiner acknowledges the statement above and wishes to express that it does not constitute that priority documents are improper. The instant priority documents were fully acknowledged as they were properly filed. See page 3, non-final office action mailed on 11/27/2009.

The Examiner have made the statement (i.e., ----It is noted that the nucleic acid of SEQ ID NO: 2 encoding the polypeptide comprising the amino acid of SEQ ID NO: 1 which is identical to the SEQ ID NO: 1 disclosed in foreign application JAPAN 2003-404472 (filed on 12/03/2003); thus, the priority date of instant SEQ ID NO: 1 is 12/03/2003. However, in view of no certified English translation(s) of the International Application No. PCT/JP04/18437, Japan 2003-404472 and Japan 2004-018344, the priority of claims having other limitation(s) (i.e., other than the nucleic acid encoding the polypeptide of SEQ ID NO: 1) is the date of instant application filing date which is 4/12/2007-----). The Examiner, merely, recited that statement to clarify the effective priority date of claims in view of intervening reference(s) as noted in rejection(s) under 35 USC 102, which applicants acknowledges on page 12, line 6-8, Remarks filed on 9/21/2010. It may have been clearer for the applicants if such statement were made in art rejection; but, since it concerns effective priority date of claim limitation, the

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Examiner recited under the "Priority" instead of making the same statement multiple times within art rejections.

The Examiner notes that instant application is 371 of PCT/JP04/18437 and has no problem of claiming priority date to the filing date of said PCT/JP04/18437. However, PCT/JP04/18437 is not US patent application; but a foreign application filed in Japan in Japanese language. When an intervening reference is used in rejection(s), according to MPEP 201.15, --- If the priority papers are already in the file when the examiner finds a reference with the intervening effective date, the examiner will study the papers, if they are in the English language, to determine if the applicant is entitled to their date. If the applicant is found to be entitled to the date, the reference is simply not used but may be cited to applicant on form PTO-892. If the applicant is found not entitled to the date, the unpatentable claims are rejected on the reference with an explanation. If the papers are not in the English language and there is no translation, the examiner may reject the unpatentable claims and at the same time require an English translation for the purpose of determining the applicant's right to rely on the foreign filing date.---- (emphasis added)

Also, the right to rely on the filing date two instant Japanese patent application would not be entitled as effective priority date for instant claim limitation(s) without proper support and continuity from PCT/JP04/18437; since instant application (10/581,551) is filed more than one year from the filing date of said two Japanese patent application.

As noted previously, PCT/JP04/18437 is not US application and is not in English language; and requires an English translation for the purpose of determining the applicants' right to rely on the foreign filing date, if foreign documents fully supports the claimed limitation(s).

Maintained-Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. The previous rejection of Claims 4, 7, 10, 11 and 18 under 35 U.S.C. § 112, first paragraph, **written description**, is maintained for the reasons set forth below.

Applicants argue that instant amendment clarify the language noted by the Examiner in the Action and requested withdrawal of the rejection.

Applicants' arguments have been fully considered but are not deemed persuasive for the following reasons. It is noted that any unclearness in claims would have been addressed under 35 U.S.C. § 112, second paragraph (emphasis added). Instant rejection is under 35 U.S.C. § 112, first paragraph for lack of adequate written description of structure and functional correlation for one skilled in the art in view of overly broad scope of claims. The examiner acknowledges the amendments as noted by applicants. However, even with the instant amendment, open terminology "having" which is equivalent to "comprising" such that claims allows any additional mutations or changes in amino acids or nucleotides, instant claims includes, but not limited to only "a

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deletion, substitution, and/or addition of 1 to 20 amino acids" or "a deletion, substitution, and/or addition of 1 to 60 nucleotides"; thus, instant claims encompass any additional deletion, substitution, and/or addition in addition to the 1 to 20 amino acids changes; and in addition to the 1 to 60 nucleotides changes.

The Examiner suggests amendment below which may overcome instant rejection.

In claims 4 and 18, ---(b) a protein comprising the amino acid residues of SEQ ID NO: 1; except for only 1-10 amino acids mutation, wherein the mutation is selected from group consisting of deletion, substitution, and addition; and wherein said protein exists in the form of a monomer having orange fluorescence properties equivalent to the protein of (a).---

In claims 7 and 18, ---(b) DNA comprising the nucleotide sequence of SEQ ID NO: 2, except for only 1-30 nucleotides mutation; wherein the mutation is selected from group consisting of deletion, substitution, and addition; and wherein said DNA encodes protein that is in the form of a monomer having orange fluorescence properties equivalent to the protein encoded by DNA of (a).---

Thus, for all the reasons above and reasons set forth in the previous office actions, the instant rejection is maintained.

Maintained-Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. The previous rejection of Claims 4, 7, 10, 11 and 18 under 35 U.S.C. 102(b) as being anticipated by Timms-Wilson et al. (Journal of Microbiological Methods, 2001, Vol. 46, pages 77-80, as cited in PTO892 mailed on 11/27/2009), is maintained for reasons below.

Applicants argue that in view of instant amendment, the lack of clarity has been addressed which prompted the rejection under 35 U.S.C. §112. See bottom of page 12, Remarks filed on 9/21/2010.

Applicants' arguments have been fully considered but are not deemed persuasive for the following reasons. As noted above, any unclearness would have been addressed under 35 U.S.C. § 112, second paragraph (emphasis added). The examiner acknowledges the amendments as noted by applicants. However, the recited term "having" is equivalent to open terminology "comprising" in claims allows any additional mutations or changes in amino acids or nucleotides, instant claims includes, but not limited to only "a deletion, substitution, and/or addition of 1 to 20 amino acids" or "a deletion, substitution, and/or addition of 1 to 60 nucleotides"; thus, instant claims encompass any additional deletion, substitution, and/or addition in addition to the 1 to 20 amino acids changes; and in addition to the 1 to 60 nucleotides changes. For example, a DNA encoding fluorescent protein which 1 deletion from SEQ ID NO: 1

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polypeptide (meeting the limitation of instant claim 1) and further having unlimited amount of variations in SEQ ID NO: 1 such that amino acid sequence becomes GFP of Timms-Wilson et al.

As noted previously (see non-final office action mailed on 11/27/2009); Timms-Wilson et al. et al. teach plasmid pUTgfp/lux which were transformed in to E. coli (see description of Figure 1 on page 78). The plasmid pUTgfp/lux by Timms-Wilson et al. meets the limitation of claimed DNA and vector having appropriate number of deletion, substitution, and/or addition from the nucleotide of SEQ ID NO: 2. The green fluorescent protein (GFP) encoded by the DNA or vector carrying gfp gene also meets the limitation of having fluorescence properties equivalent to the polypeptide of SEQ ID NO: 1 in view of broad definition of "equivalent fluorescence properties" which means that a fluorescent protein has equivalent fluorescence intensity, equivalent excitation wavelength, equivalent fluorescence wavelength, equivalent pH sensitivity, and the like (emphasis added, see page 16, lines 5-9) and in view of broad and reasonable interpretation of the term "equivalent" which includes but not limited as being identical to each other. Timms-Wilson et al. also teach the GFP protein is 30 kDa monomer (see left column, lines 26-27, page 80); thus, meeting the limitation of Claims 4, 7, 10 and 18. Also, the transformed E. coli with vector pUTgfp/lux meets the limitation of Claims 11 and 18.

Thus, for all the reasons above and reasons set forth in the previous office actions, the instant rejection is maintained. To overcome instant rejection, the Examiner has suggested claim amendments above.

8. Claims 4, 7, 10, 11 and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Karasawa et al. (Biochem. J., E. publication date of 4/5/2004, Vol. 381, pages 307-312, as cited in the IDS filed on 6/21/2007); or are rejected under 35 U.S.C. 102(a) if claim limitations are supported by the PCT/JP04/18437 but not in the Foreign Applications (i.e., Japan 2003-404472 and Japan 2004-018344).

Applicants argue that effective filing date of the present application is December 3, 2004; thus, Karasawa et al. (2004) can not qualify as a reference under 35 U.S.C. §102(b); and Karasawa et al. is published after instant foreign priorities which translation has been provided by applicants on 09/21/2010.

Applicants' arguments have been fully considered but are not deemed persuasive for the following reasons. As explained in the "Priority" above, The Examiner notes that instant application is 371 of PCT/JP04/18437 and has no problem of claiming priority date to the filing date of said PCT/JP04/18437. However, PCT/JP04/18437 is not US patent application; but a foreign application filed in Japan in Japanese language. When an intervening reference is used in rejection(s), according to MPEP 201.15, --- If the priority papers are already in the file when the examiner finds a reference with the intervening effective date, the examiner will study the papers, if they are in the English language, to determine if the applicant is entitled to their date. If the applicant is found to be entitled to the date, the reference is simply not used but may be cited to applicant on form PTO-892. If the applicant is found not entitled to the date, the unpatentable claims are rejected on the reference with an explanation. If the papers are

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not in the English language and there is no translation, the examiner may reject the unpatentable claims and at the same time require an English translation for the purpose of determining the applicant's right to rely on the foreign filing date.---- (emphasis added)

Also, the right to rely on the filing date two instant Japanese patent application would not be entitled as effective priority date for instant claim limitation(s) without proper support and continuity from PCT/JP04/18437; since instant application (10/581,551) is filed more than one year from the filing date of said two Japanese patent application.

As noted previously, PCT/JP04/18437 is not US application and is not in English language; and requires an English translation for the purpose of determining the applicants' right to rely on the foreign filing date, if foreign documents fully supports the claimed limitation(s).

Thus, the effective priority date of instant claims are filing date of instant application (i.e., 4/12/2007). The instant inventive entity is different from the authors of publication by Karasawa et al.; thus, it is considered as publication by other in regard to rejection under 35 U.S.C. 102(a).

Karasawa et al. teach a nucleotide encoding the orange emitting fluorescent protein (FP) from *Fungia concinna* which is 100% identical to the instant SEQ ID NO: 1 which is encoded by the nucleotide as set forth in SEQ ID NO: 2 (see sequence alignment attached at the end of instant office action).

Karasawa et al. et al. teach a mutant FP from the SEQ ID NO: 1 having three amino acid substitutions to convert said FP to monomeric form (see the Abstract) by recombinant DNA technology and PCR driven random mutagenesis as described in "Experimental" (see right column, page 307 to top left column of page 308) which discloses using expression vector transforming into an E. coli; thus, meeting the limitations of claims 4, 7, 10, 11 and 18.

Maintained-Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

9. The previous rejection of Claims 4, 7, 10, 11 and 18 on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-8 of U.S. Patent No. 7,541,451; is maintained for reasons below. Although the conflicting

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claims are not identical, they are not patentably distinct from each other for the reasons set forth below.

Applicants have provided arguments for all pending double patenting rejection together as noted herein. Applicants argue that the protein KO (or KCy) of U.S. Patent No. 7,226,993 (or U.S. Patent No 7,541,451) emits fluorescence in the form of a multimer, and does not emit fluorescence in the form of a monomer as shown in the attachment (see Experimental Results filed on 9/21/2010), whereas the instant mKO is fluorescent (see Remarks filed on 9/21/2010, pages 13-14).

Applicants' arguments have been fully considered but are not deemed persuasive for the following reasons. As written, the instant claims require that encoded protein has fluorescence property equivalent to the protein (i.e., do not have to be same) and have form of monomer, independently; thus, instant claims do not excludes multimer which is formed from many monomer and having fluorescence. Furthermore, the attached experimental result can not show any results as the picture on second page disclosing a black box without any explanation. The results in second page do not even have a lane for the monomeric KO fluorescent protein of U.S. Patent No. 7,226,993; thus, it is unclear how this results would show that only a dimer is fluorescent. Also, there is no evidence that the KO used in applicants' evidence is the same polypeptide of SEQ ID NO: 1 or fluorescent protein encoded from DNA as set forth in SEQ ID NO: 7 of U.S. Patent No. 7,541,451 (or the polypeptide from U.S. Patent No. 7,226,993).

It is also noted that ---If a prima facie case of obviousness is established, the burden shifts to the applicant to come forward with arguments and/or evidence to rebut the prima facie case. See, e.g., *In re Dillon*, 919 F.2d 688, 692, 16 USPQ2d 1897, 1901 (Fed. Cir. 1990). Rebuttal evidence and arguments can be presented in the specification, *In re Soni*, 54 F.3d 746, 750, 34 USPQ2d 1684, 1687 (Fed. Cir. 1995), by counsel, *In re Chu*, 66 F.3d 292, 299, 36 USPQ2d 1089, 1094-95 (Fed. Cir. 1995), or by way of an affidavit or declaration under 37 CFR 1.132, e.g., *Soni*, 54 F.3d at 750, 34 USPQ2d at 1687; *In re Piasecki*, 745 F.2d 1468, 1474, 223 USPQ 785, 789-90 (Fed. Cir. 1984)---, see MPEP [R-6]. As noted above, applicants' argument is not persuasive, nor the evidence are presented by way of an affidavit or declaration under 37 CFR 1.132.

Applicants further argue instant Example 4 shows that the instant mKO (monomeric form KO; resulting filamentous stain) is more effective in targeting to mitochondria compared to KO (resulting granulate stain), which is the evidence that both KO and mKO are fluorescent (see Bottom of page 14, Remarks filed on 9/21/2010).

However, instant claims are not limited to the KO polypeptide used in Example 4; and said advantageous functional limitation is not in the instant claim. The applicants' experimental result do not show that fluorophore in fluorescent protein disclosed US Patent 7,541,451 or 7,226,993 are in the interface of two monomers.

Applicants argue that KCy of U.S. Patent No. 7,541,451 has fluorescent color that is different from that of the present invention having excitation peak about 450 nm.

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However, instant claims are not limited to any particular wavelength excitation peak as written. In view of broad definition of "equivalent fluorescence properties" which means that a fluorescent protein has equivalent fluorescence intensity, equivalent excitation wavelength, equivalent fluorescence wavelength, equivalent pH sensitivity, and the like (emphasis added, see page 16, lines 5-9), and in view of broad and reasonable interpretation of the term "equivalent" which includes but not limited as being identical to each other.

As noted above, the recited term "having" is equivalent to open terminology "comprising" in claims which allows any additional mutations or changes in amino acids or nucleotides, instant claims includes, but not limited to only "a deletion, substitution, and/or addition of 1 to 20 amino acids" or "a deletion, substitution, and/or addition of 1 to 60 nucleotides"; thus, instant claims encompass any additional "deletion, substitution, and/or addition" in addition to the 1 to 20 amino acids changes; and in addition to the 1 to 60 nucleotides changes. Also, it is noted that polypeptide has to form monomer before become multimer.

The isolated DNA (the vector, the transformants and the kit thereof) encoding the polypeptide of SEQ ID NO: 1 (has 52 mismatch compared to instant SEQ ID NO: 1) anticipate instant DNA encoding the protein comprising (emphasis added) mutations which includes, but not limited to, 1-20 amino acids from SEQ ID NO: 1; or mutations which includes, but not limited to, 1-60 nucleotide (or the vector, the transformants and the kit containing claimed DNA thereof). Also the claims 1-8 of Patent No. 7,541,451 encompasses preferred embodiment of variant of nucleic acid encoding the mutant of

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polypeptide of SEQ ID NO: 1; for example, SEQ ID NO: 3 which has 22 substitutions compared to the instant SEQ ID NO: 1 which anticipates the instant claims 4, 10, 11 and 18. The Patent No. 7,226,993 also disclose the DNA as set forth in SEQ ID NO: 7 encoding fluorescent protein having 34 mismatch compared to the instant SEQ ID NO: 2 (see sequence alignment below); thus, anticipates instant claims 7 and 18.

10. The previous rejection of Claims 4, 7, 10, 11 and 18 on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-8 of U.S. Patent No. 7,226,993, is maintained for reasons set forth above obviousness type-double patenting rejection over claims 1-8 of U.S. Patent No. 7,541,451.

Although the conflicting claims are not identical, they are not patentably distinct from each other for the reasons set forth below.

As noted above, because the term "having" is equivalent to open terminology "comprising" in claims, it allows any additional mutations or changes in amino acids or nucleotides, instant claims includes, but not limited to only "a deletion, substitution, and/or addition of 1 to 20 amino acids" or "a deletion, substitution, and/or addition of 1 to 60 nucleotides"; thus, instant claims encompass any additional "deletion, substitution, and/or addition" in addition to the 1 to 20 amino acids changes; and in addition to the 1 to 60 nucleotides changes. Also, it is noted that polypeptide has to form monomer before become multimer.

The isolated DNA (the vector, the transformants and the kit thereof) encoding the polypeptide of SEQ ID NO: 3 (has 22 mismatch compared to instant SEQ ID NO: 1; see

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sequence alignment below) anticipate instant DNA encoding the protein comprising (emphasis added) mutations which includes, but not limited to, 1-20 amino acids from SEQ ID NO: 1; or mutations which includes, but not limited to, 1-60 nucleotide (or the vector, the transformants and the kit containing claimed DNA thereof). Also the claims 1-8 of Patent No. 7,226,993 encompasses variant having 11 amino acid mutations from the SEQ ID NO: 3 (thus, encompasses 22-11= 11 mismatch, for example; and the vector, the transformants and the kit containing claimed DNA therefrom) anticipates the instant variant of nucleic acid encoding the mutant of polypeptide of SEQ ID NO: 1 consisting 1-20 amino acid substitution in instant claims 4, 10, 11 and 18. The Patent No. 7,226,993 also disclose the DNA as set forth in SEQ ID NO: 7 encoding fluorescent protein having 34 mismatch compared to the instant SEQ ID NO: 2 (see sequence alignment below); thus, anticipates instant claims 7 and 18.

Conclusion

11. Claims 4, 7, 10, 11 and 18 are not allowed for the reasons identified in the numbered sections of this Office action. Applicants must respond to the objections/rejections in each of the numbered section in this Office action to be fully responsive in prosecution.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ALEXANDER D. KIM whose telephone number is (571)272-5266. The examiner can normally be reached on 10AM-6:30PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Manjunath Rao can be reached on (571) 272-0939939. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

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USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Alexander D Kim/
Examiner, Art Unit 1656